

We Claim:

1. A data output control method that controls interaction between an information apparatus and a selected output device in connection with rendering at the selected output device output content managed with the information apparatus, comprising:

storing at least part of an output device object having one or more attributes relating to the selected output device;

providing the at least part of the output device object to the information apparatus by wireless transmission; and

receiving output data from the information apparatus by wireless transmission, the output data relating to the output content managed with the information apparatus, and passing the output data to the selected output device for rendering of the output content.

2. The method of claim 1 in which the output data includes device dependent data with respect to the output device.

3. The method of claim 1 in which the output medium is one or more of a substrate, a paper, a display screen, and a projection.

4. The method of claim 1 in which the output controller further comprises means for posting or broadcasting its availability for service.

5. The method of claim 1 further comprising receiving plural service requests from plural information apparatuses, the output controller providing the at least part of the output device object to each of the plural information apparatuses.

6. The method of claim 1 in which the at least part of the output device object is provided to the information apparatus in response to a service request received from the information apparatus.

7. The method of claim 1 in which the at least part of the output device object is provided to the information apparatus in more than one communication session with the information apparatus.

8. The method of claim 1 in which the output device includes a printer.

9. The method of claim 1 in which the output controller further includes means for implementing payment processing as compensation for rendering of the

output content on the output device.

10. The method of claim 1 in which the output controller further includes means for implementing job management functionalities with one or more of data output job queuing and spooling.

11. The method of claim 1 in which the output controller further includes means for providing a user interface for receiving user-implemented modifications of the controller.

12. The method of claim 1 in which the output controller further includes means for implementing a security procedure that limits access to the rendering provided by the selected output device.

13. The method of claim 12 in which the security procedure includes storing in a memory component an access control list specifying an information apparatus for which the selected output device will render output content.

14. The method of claim 1 in which the output controller is included in the output device.

15. The method of claim 1 in which the output controller further includes means for converting the output data content into a form compatible with the output engine.

16. The method of claim 1 in which the output controller further includes means for performing at least partially, raster image processing operations on the output data.

17. A data output controller that controls interaction between an information apparatus and a selected output device in connection with the selected output device rendering output content managed with the information apparatus, comprising:

means for storing at least part of an output device object having one or more attributes relating to the selected output device;

means for providing the at least part of the output device object to the information apparatus; and

means for receiving output data from the information apparatus, the output data relating to the output content managed with the information apparatus, and for

passing the output data to the selected output device for rendering of the output content.

18. The controller of claim 17 in which the communication between the output controller and the information apparatus includes wireless transmission.

19. The controller of claim 17 further comprising means for posting or broadcasting its availability or service.

20. The controller of claim 19 in which the posting or broadcasting includes one or more of a price indicator, a quality of service indicator, and an availability indicator.

21. The controller of claim 17 in which the output medium is one or more of a substrate, a paper, a display screen, and a projection.

22. The controller of claim 17 further comprising means for receiving plural service requests from plural information apparatuses, the output controller providing the at least part of the output device object to each of the plural information apparatuses.

23. The controller of claim 17 further comprising means for receiving from the information apparatus device-specific output data corresponding to the output content to be rendered at the selected output device.

24. The controller of claim 17 in which the output device includes a printer.

25. The controller of claim 24 in which the printer includes a printer controller, the output controller further includes means to converting the output data into a form compatible with the printer controller.

26. The controller of claim 24 in which the printer does not includes a printer controller; the output controller further includes means to converting the output data into a form compatible with the printer engine.

27. The controller of claim 17 in which the output controller further includes means for implementing job management functionalities with one or more of data output job queuing and spooling.

28. The controller of claim 17 in which the output controller further includes means for implementing a security procedure that limits access to the rendering provided by the selected output device.

29. The controller of claim 17 in which the output controller is included in the output device.

30. The controller of claim 17 in which the output controller is separate from the output device.

31. The controller of claim 17 in which the output controller is one of a server, an external station, a board, a card, and a data access point.

32. The controller of claim 17 in which the output controller further includes means for performing at least partially, raster image processing operations on the output data, the image processing operation including one or more of a interpretation operation, a conversion operation, a rasterization operation, a scaling operation, a segmentation operation, color space transform operation, an image enhancement operation, a color correction operation, a half-toning operation, a compression operation, and an encryption operation.

33. In a computer readable medium, data output control software that controls interaction between an information apparatus and a selected output device in connection with the selected output device rendering output content managed with the information apparatus, comprising:

software for storing at least part of an output device object having one or more attributes relating to the selected output device;

software for providing the at least part of the output device object to the information apparatus by wireless transmission; and

software for receiving an output data from the information apparatus by wireless transmission, the output data relating to the output content managed with the information apparatus, and for passing the output data to the selected output device for rendering of the output content.

34. The medium of claim 33 further comprising software for implementing wireless communication.

35. The medium of claim 33 further comprising software for implementing a discovering process for communicating with other devices.

36. The medium of claim 33 further comprising software for receiving plural service requests from plural information apparatuses, the output controller providing

the at least part of the output device object to each of the plural information apparatuses.

37. The medium of claim 33 in which the output controller further includes means for providing the at least part of the output device object to the information apparatus as unsolicited information without a request therefor from the information apparatus.

38. The medium of claim 33 in which the at least part of the output device object is provided to the information apparatus in more than one communication session with the information apparatus.

39. The medium of claim 33 in which the output controller further includes means for implementing payment processing as compensation for rendering of the output content on the output device.

40. The medium of claim 33 in which the output controller further includes means for implementing job management functionalities with one or more of data output job queuing and spooling.

41. The medium of claim 33 in which the output controller further includes means for providing a user interface for receiving user-implemented modifications of the controller.

42. The medium of claim 33 in which the output controller further includes means for implementing a security procedure that limits access to the rendering provided by the selected output device.

43. The medium of claim 42 in which the security procedure includes storing in a memory component an access control list specifying an information apparatus for which the selected output device will render output content.

44. The medium of claim 42 in which the security procedure includes one or more of a subscription indicator, a login, a password, and an authentication.

45. The medium of claim 33 in which the output controller further includes means for converting the output data content into a form compatible with the output engine.

46. The medium of claim 33 in which the output controller further includes means for performing at least partially, raster image processing operations on the

output data.

47. The medium of claim 46 in which the image processing operation includes one or more of a interpretation operation, a conversion operation, a rasterization operation, a scaling operation, a segmentation operation, color space transform operation, an image enhancement operation, a color correction operation, a halftoning operation, a compression operation, and an encryption operation.

48. A data output control method that controls interaction between an information apparatus and a selected output device in connection with the selected output device rendering output content managed with the information apparatus, comprising:

storing at least part of an output device object having one or more attributes relating to the selected output device;

providing the at least part of the output device object to the information apparatus; and

receiving an output data from the information apparatus, the output data relating to the output content managed with the information apparatus, and passing the output data to the output engine for rendering of the output content at the output device.

49. The method of claim 48 in which the output device includes one of a display device or a projection device.